

### REMARKS

The claims now pending in the application are Claims 1 to 7, 9 to 38, 40 to 45 and 47 to 50, the independent claims being Claims 1, 14, 17, 26, 29, 42, 44 and 48.

Claims 1, 9, 14, 17, 26, 29, 42, 44 and 48 have been amended.

The drawings have been objected to under MPEP § 608.02(g) in that Figs. 1-5, 12, 13, 14A and 14B should be designated prior art. This objection is respectfully traversed. Figures 1-5, 12, 13, 14A and 14B when taken together with the other figures of the application are believed to show the inventive features of the application and are not prior art. Accordingly, it is not believed appropriate to label the objected-to figures as prior art.

In the Official Action dated January 9, 2001, Claims 9, 10, 14 to 25, 40 and 41 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. In response, Claim 9 has been amended to depend from Claim 8 and Claims 14 and 17 have been amended to change "correlation" to "response characteristic". With these changes, it is believed that Claims 9, 10, 14-25, 40 and 41 fully meet the requirements of 35 U.S.C. § 112, second paragraph.

Claims 14 to 37, 40, 41, 48 and 50 have been rejected under 35 U.S.C. § 102(e), as anticipated by U.S. Patent No. 5,648,836 (Sato). Claims 44, 45 and 47 were rejected under 35 U.S.C. § 102(b), as anticipated by U.S. Patent No. 5,159,370 (Takahashi). Claims 1 to 7 and 9 to 13 were rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 5,278,601 (Kawanami), in view of U.S. Patent No. 5,485,200 (Shimizu). Claims 38 and 39 were rejected under 35 U.S.C. § 103(a), as unpatentable over the Sato '836 patent, in view of the Kawanami '601 patent. Claims 42

and 43 were rejected under 35 U.S.C. § 103(a), as unpatentable over the Takahashi '370 patent, in view of U.S. Patent No. 5,475,456 (Haraguchi). Reconsideration and withdrawal of the objection and rejections respectfully are requested in view of the above amendments and the following remarks.

The rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the rejections, Claims 1, 9, 14, 17, 26, 29, 42, 44 and 48 have been amended herein more clearly to recite various novel features of the present invention, with particular attention to the Examiner's comments. Support for the proposed amendments may be found in the original application. No new matter has been added.

With regard to Claims 14 to 37, 40, 41, 48 and 50 rejected under 35 U.S.C. § 102(e), as anticipated by U.S. Patent No. 5,648,836 (Sato), independent Claim 14 as amended by this amendment is directed to image pickup apparatus having a camera part and a lens part with a magnification lens and a ring member that drives the lens part. In the apparatus, a detection unit detects a change amount of a rotation of the ring member to drive the lens part. A control unit selects and determines a response characteristic between the detector output and the motion of the magnification lens and controls motion/stop of at least the magnification lens along an optical axis in accordance with the detection output. A storing unit provided in the camera part stores information of the response characteristic transmitted from the lens part.

Independent Claim 17 as amended by this amendment is directed to image pickup apparatus having a camera part and a lens part with a magnification lens and a ring member that drives the lens part. In the apparatus, a detection unit detects a change

amount of a rotation of the ring member to drive the lens part. A control unit provides plural characteristics each settable by a user to select and determine a response characteristic between the detection output and a motion of the magnification lens and controls motion/stop of at least the magnification lens along the optical axis in accordance with the detection unit output. A storing unit in the camera part stores information of the response characteristic transmitted from the lens part.

Independent Claim 26 as amended by this amendment is directed to image pickup apparatus having an image pickup main body and a lens unit with a magnification lens and a ring member disposed concentrically about a lens optical axis. In the apparatus, a detection unit detects a change amount of a rotation of the ring member disposed concentrically about the lens optical axis. A control unit selects and determines a response characteristic between the detection output and a motion of the magnification lens. The control unit controls motion/stop of at least the magnification lens along the optical axis in accordance with an output of the detection unit. An output unit outputs information of the response characteristic from the lens unit to a storing unit in the main body.

Independent Claim 29 as amended by this amendment is directed to image pickup apparatus having camera body and a lens unit which has a magnification lens and a ring member disposed concentrically about a lens optical axis. In the apparatus, a detection unit detects a change amount of a rotation of the ring member disposed concentrically about the lens optical axis. A control unit selects and determines a response characteristic between a detection output and a motion of the magnification lens. A setting unit for a user sets the characteristic of the control unit and an output unit outputs information of the response characteristic from the lens unit to the camera body. A motion/stop of at least the

magnification lens is controlled along the optical axis in accordance with the detection output.

In Applicant's view, Sato et al. discloses optical apparatus having a movable optical member, a driving part for causing the optical member to move, a manual operation member capable of being operated to be moved, a first detecting part for detecting at least an operating speed of the manual operation member, a second detecting part for detecting a focal length of the optical apparatus and a control part for causing the driving part to act on the basis of an output of the first detecting part and being arranged to receive an output of the second detecting part and to vary an action of the driving part according to a change of the focal length.

According to the invention of Claims 14, 17, 26 and 29, an image pick up apparatus transmits a response characteristic between an operation amount of a ring member and a motion of a magnification lens which is set at a lens part from the lens part to a camera part to store the transmitted characteristic in a memory of the camera part. Advantageously, even when a characteristic of the lens part changes, the camera part can manage information with regard to the lens characteristic.

Sato et al. may disclose a camera that detects rotation speed (rotation amount) and change of focal distance of a zoom lens to change the driving speed of the zoom lens according to detection results. The Sato et al. disclosure, however fails to teach the feature of a camera part receiving a response characteristic from a lens part to store the received characteristic in a memory of the lens part. Accordingly, it is not seen that Sato et al. in any manner teaches or suggests the features of Claims 14, 17, 26 and 29. It is

therefore believed that Claims 14, 17, 26 and 29 are completely distinguished from Sato et al. and are allowable.

Independent Claim 48 as amended by this amendment is directed to image pickup apparatus having a magnification lens group. In the apparatus, a ring member is disposed concentrically about a lens optical axis. A detection unit detects a change amount of a rotation of the ring member. A control unit determines motion direction and speed of the magnification lens group in accordance with the detection output. The control unit performs motion/stop control of the magnification lens group along the optical axis and a change unit changes sensitivity of the motion of the magnification lens group relative to a detection result in accordance with a photographing state.

As amended by this amendment, it is a feature of Claim 48 that an image pickup apparatus changes sensitivity of motion of a lens group to a change amount of a rotation of a ring member according to a photographic state (a program mode) and changes a moving speed of the lens group according to the lens group. As discussed with respect to Claims 14, 17, 26 and 29, Sato et al. only disclose a camera that detects rotation speed (rotation amount) and change of focal distance of a zoom lens to change the driving speed of the zoom lens according to detection results. Sato et al. is not seen to teach or suggest changing the sensitivity of a lens driving in response to an operation of a ring member according to a photographing state. Accordingly, it is believed that Claim 48 as amended by this amendment is completely distinguished from Sato and is allowable thereover.

With regard to Claims 44, 45 and 47 rejected under 35 U.S.C. § 102(b), as anticipated by U.S. Patent No. 5,159,370 (Takahashi), independent Claim 44 as amended by this amendment is directed to image pickup apparatus having a lens unit with a

magnification group. In the apparatus, a ring member is disposed concentrically about a lens optical axis of the lens unit. A detection unit detects a change amount of a rotation of the ring member. A control unit determines motion direction and speed of the magnification lens group in accordance with the detection output and performs motion/stop control of the magnification lens group along the optical axis. A change unit changes a sensitivity of the motion of the magnification lens group relative to the detection result so as to change a reference amount of rotation of the ring member for permitting/inhibiting the motion of the magnification lens group.

In Applicant's opinion, Takahashi discloses a powered zoom device for a camera that includes a lens having a variable magnification lens group that is adapted to be changed in a focal length in response to a displacement thereof in a direction along an optical axis. A magnification lens group is driven. The driving of the magnification lens group is controlled so as to move the magnification lens group with a constant rate of the focal length.

In accordance with the invention of Claim 44 as amended by this amendment, an image pickup device changes sensitivity of motion of a lens group to change an amount of rotation of a ring member to thereby change the reference amount of rotation of the ring member to permit and inhibit motion of the lens group. Takahashi may disclose a camera having a power zoom function in which a driving speed of a zoom lens is changed according to a focal distance or a position of the zoom lens to keep a change ration of the focal distance constant. The Takahashi arrangement, however, is not seen as teaching or suggesting in any manner the feature of Claim 44 of changing a reference amount of rotation of a ring member to permit and inhibit motion of a lens group.

Accordingly, it is believed that Claim 44 as amended by this amendment is completely distinguished from Takahashi and is allowable.

With regard to Claims 1 to 7 and 9 to 13 rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 5,278,601 (Kawanami), in view of U.S. Patent No. 5,485,200 (Shimizu), independent Claim 1 as amended by this amendment is directed to image pickup apparatus having a lens group in which a ring member drives a lens and a detection unit detects a change amount of rotation of the ring member. A control unit performs motion/stop control of at least the lens group along the optical axis according to a detection result. A motion direction setting unit in the image pickup apparatus has a character generator, a menu setting unit, a display unit provided in the image pickup apparatus, a menu function control unit that controls the character generator according to the operation state of the menu setting unit operated by the user and displays a predetermine menu on a display screen of the display unit, and a setting unit that selects a desired setting item among plural items displayed on the predetermined menu and sets a condition regarding the motion direction of the lens group.

Kawanami, in Applicant's view, discloses an optical apparatus that includes a driving part for driving an optical member such as a lens or the like to move along its optical axis. A rotary operation member is arranged to determine the moving direction of the optical member by the rotating direction of the rotary operation member. A switching part is arranged to permit switching a relationship between the rotating direction of the rotary operation member and the moving direction of the optical member, and a control part is arranged to control the driving part to cause the optical member to move in one of

two opposite directions according to the rotating direction of the rotary operation member and the switching position of the switching part.

Shimizu, in Applicant's opinion, discloses an operational information renewing and memorizing apparatus and method for a photographing instrument. One example is a function renewing and memorizing apparatus and method for a still video apparatus which memorizes or reproduces a still picture and includes a picture display device for displaying information relating to functions for recording and reproducing. A selecting device selects a predetermined function from the information displayed on the picture display device and a memory device memorizes the information of said function selected by the selecting device.

According to the invention of Claim 1 as amended by this amendment, an image pickup apparatus sets a function (e.g. moving direction) of a lens by using a display unit arranged on a camera unit. Kawanami may disclose a camera which can reversibly switch a relationship between the rotation direction of an operation ring and the drive direction of a lens. Shimizu discloses setting a function such as a photographing interval of an electronic still camera using a menu display of a personal computer. Neither the Kawanami disclosure nor the Shimizu disclosure, however, suggests in any manner using the display of a camera unit to set a function of a lens unit as in Claim 1. Accordingly, it is not seen that these cited references suggest the features of Claim 1 and it is believed that Claim 1 as amended by this amendment is completely distinguished from any combination of Kawanami and Shimizu and is allowable.

With regard to Claims 42 and 43 rejected under 35 U.S.C. § 103(a), as unpatentable over the Takahashi '370 patent, in view of U.S. Patent No. 5,475,456



(Haraguchi), independent Claim 42 as amended by this amendment is directed to image pickup apparatus in which a ring member is disposed concentrically about a lens optical axis of a lens unit. A detection unit detects an amount of rotation of the ring member. A control unit performs motion/stop control of at least a magnification lens group along the optical axis in accordance with a detection result and an inhibition unit inhibits the magnification lens to stop during a predetermine period in a state in which the detection unit does not detect the amount of rotation.

In Applicant's view, Haraguchi et al. discloses a zoom lens for a camera having a between-the-lens shutter that includes a motor for moving the lens along an optical axis in forward and rearward directions. A switch is operable by an operator to control operation of the motor for moving the lens from an initial position on the axis to a final stationary position that establishes the focal length of the lens. Control apparatus is responsive to the setting of the switch for operating the motor such that movement of the lens from its initial position to its final position always ends after the lens travels to its final position in a predetermined direction.

It is a feature of Claim 42 as amended by this amendment that an image pickup apparatus inhibits a magnification lens to stop of a predetermined period even if the rotation of a ring member is not detected. As discussed with respect to Claim 44, Takahashi only discloses a power zoom camera function wherein the driving speed of a zoom lens is changed according to the focal distance or the position of the zoom lens to keep the change ratio of the focal distance constant. The Takahashi arrangement, however, fails to teach keeping a zoom lens moving even when the rotation of the zoom member is not detected as in Claim 42.

Haraguchi et al. may disclose keeping rotation of zoom motor when the moving direction of a lens is reversed to compensate back lash of gears. The zoom lens control when the moving direction of a lens is reversed fails to suggest the features of Claim 42. Accordingly, it is not seen that the addition of the rotation speed control of a zoom lens of Haraguchi et al. to compensate for gear problems to the changing of the driving speed of a zoom lens according to focal distance or the position of the zoom lens to keep the change ratio of the focal distance constant in any manner suggest the feature of Claim 42 of inhibiting a magnification lens from stopping for a predetermined period even if rotation of the ring member is not detected. It is therefore believed that Claim 42 as amended by this amendment is completely distinguished from any combination of Takahashi and Haraguchi et al. and is allowable.

Applicant submits that the prior art fails to anticipate the present invention. Moreover, Applicant submits that there are differences between the subject matter sought to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious at the time the invention was made to one of ordinary skill in the art.

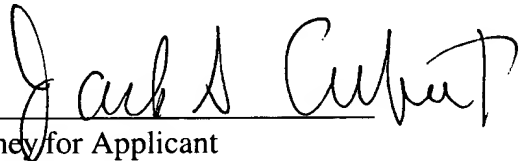
For the above reasons, Applicant submits that independent Claims 1, 14, 17, 26, 29, 42, 44 and 48 are allowable over the cited art.

Claims 2 to 7, 9 to 13, 15, 16, 18 to 25, 27, 28, 30 to 41, 43, 45, 47, 49 and 50 depend from Claims 1, 14, 17, 26, 29, 42, 44 and 48, respectively, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicant believes that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submits that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's attorney, C. Phillip Writst, may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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**VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS**

1. (Twice Amended) An image pickup apparatus having a lens group, comprising:

a ring member for driving a lens;

detection means for detecting a change amount of a rotation of said ring member;

control means for performing motion/stop control of at least the lens group along an optical axis in accordance with a detection result by said detection means; and

motion direction setting means for a user to set a desired motion direction of the lens group relative to the rotation direction of said ring member,

wherein said motion direction setting means comprises a (i) character generator, (ii) menu setting means, (iii) display means provided in said image pickup apparatus, (iv) [(iii)] a menu function control unit for controlling said character generator in accordance with the operation state of said menu setting means operated by the user, and for displaying a predetermined menu on a display screen of the display means, and (v) [(iv)] setting means for selecting a desired setting item among a plurality of items displayed on the predetermined menu and setting a condition regarding the motion direction of the lens group.

9. (Amended) An image pickup apparatus according to claim 1 [8], wherein a lens unit is made removable relative to the main body of the image pickup apparatus.

14. (Twice Amended) An image pickup apparatus having (i) a camera part, and (ii) a lens part with a magnification lens and a ring member that drives the lens part, comprising:

detection means which detects a change amount of a rotation of the ring member for driving the lens part;

control means [provided with a plurality of characteristics] for selecting and determining a response characteristic [correlation] between an output of said detection means and a motion of the magnification lens, and for controlling motion/stop of at least the magnification lens along an optical axis in accordance with an output of said detection means; and

storing means, provided in said camera part, for storing information of the response characteristic [correlation] transmitted from the lens part.

17. (Twice Amended) An image pickup apparatus having (i) a camera part, and (ii) a lens part with a magnification lens and a ring member that drives the lens part, comprising:

detection means which detects a change amount of a rotation the ring member for driving the lens part;

control means providing a plurality of characteristics each settable by a user for selecting and determining a response characteristic [correlation] between an output of said detection means and a motion of the magnification lens, and for controlling motion/stop of at least the magnification lens along an optical axis in accordance with an output of said detection means; and

storing means, provided in said camera part, for storing information of the response characteristic [correlation] transmitted from the lens part.

26. (Twice Amended) An image pickup apparatus having (i) an image pickup apparatus main body and (ii) a lens unit which has a magnification lens and a ring member disposed concentrically about a lens optical axis, comprising:

detection means for detecting a change amount of a rotation of the ring member disposed concentrically about the lens optical axis;

control means [provided with a plurality of characteristics] for selecting and determining a response characteristic [correlation] between an output of said detection means and a motion of the magnification lens, said control means for controlling motion/stop of at least the magnification lens along the optical axis in accordance with an output of said detection means; and

outputting means for outputting information of the response characteristic [correlation] from said lens unit to storing means in said main body.

29. (Twice Amended) An image pickup apparatus having (i) a camera body, and (ii) a lens unit which has a magnification lens and a ring member disposed concentrically about a lens optical axis, comprising:

detection means for detecting a change amount of a rotation of the ring member disposed concentrically about the lens optical axis;

control means [provided with a plurality of characteristics] for selecting and determining a response characteristic [correlation] between an output of said detection means and a motion of the magnification lens;

setting means for a user to set the characteristic of said control means; and

outputting means for outputting information of the response characteristic [correlation] from said lens unit to said camera body,

wherein a motion/stop of at least the magnification lens is controlled along the optical axis in accordance with an output of said detection means.

42. (Amended) An image pickup apparatus comprising:

a ring member disposed concentrically about a lens optical axis of a lens unit;

detection means for detecting a change amount of rotation of said ring member;

control means for performing motion/stop control of at least a magnification lens group along the optical axis in accordance with a detection result by said detection means; and

inhibition means for inhibiting the magnification lens to stop during a predetermined period in the state that said detection means does not detect the amount of rotation [after said ring member stops rotating].

44. (Amended) An image pickup apparatus comprising:  
a ring member disposed concentrically about a lens optical axis of a lens unit;  
detection means for detecting a change amount of rotation of said ring member;  
control means for determining motion direction and speed of a magnification lens group in accordance with an output of said detection means and performing motion/stop control of the magnification lens group along the optical axis; and  
change means for changing a sensitivity [response characteristic] of the motion of the magnification lens group relative to a detection result of said detection means so as to [between a motion start time state and a motion state of the magnification lens group];  
change a reference [wherein said change means changes a reference value of a change] amount of rotation of said ring member for permitting/inhibiting the motion of the magnification lens group.



48. (Twice Amended) An image pickup apparatus having a magnification lens group, comprising:

- a ring member disposed concentrically about a lens optical axis;
- detection means for detecting a change amount of a rotation of said ring member;
- control means for determining motion direction and a speed of the magnification lens group in accordance with an output from said detection means, and for performing motion/stop control of the magnification lens group along the optical axis; and
- change means for changing a sensitivity [response characteristic] of the motion of the magnification lens group relative to a detection result of said detection means in accordance with a photographing state.